

CLAIMS

What I claim is:

1. A remote control system for operating a circuit breaker and
5 racking it into and out of electric contact with switchgear
contained in a cell cabinet, wherein the circuit breaker is
movable by a racking mechanism between racked-in and racked-out
positions, the racking mechanism having a driven shaft and the
circuit breaker having a plug which is electrically connected to
10 a receptacle provided on the switchgear when the circuit breaker
is in the racked-in position to provide power for operation of
circuit breaker functions, said remote control system comprising:
 - a) a portable drive motor for mounting in the cell cabinet
and having a drive shaft which aligns with the driven shaft of
15 the racking mechanism;
 - b) a lever mounted in said cell cabinet for movement from a
disconnected position to a connected position wherein the driven
shaft of the racking mechanism is coupled to the drive shaft of
said drive motor, said lever having a latch key;
 - 20 c) a latching solenoid for engaging the latch key of said
lever to hold said lever in the connected position;
 - d) an electrical connector mounted to extend through the
cell cabinet;
 - e) a remote control device connected by an elongated cable

to said electrical connector; and

f) transfer means electrically connected to transfer operational control of said drive motor, said latching solenoid, and the opening, closing and charging of the circuit-breaker through said electrical connector to said remote control device.

2. A remote control system as claimed in claim 1 wherein said transfer means comprises:

a) a junction box electrically connected to the receptacle of the switchgear, to said latching solenoid and to said drive motor; and

b) a power transfer panel electrically coupled between said junction box and said electric connector for transferring the operational control through said electrical connector to said remote control device.

3. A remote control system as claimed in claim 1 and further comprising status-indicating means on said remote control device and electrically connected through said transfer means to receive status-indicating signals from the circuit breaker, from said drive motor and from said latching solenoid.

4. A remote control system as claimed in claim 1 and further comprising a switch mounted on said latching solenoid and coupled thereto to provide status indicating signals indicative of the connected position of said lever.

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5. A remote control system as claimed in claim 4 and further comprising a cable assembly connecting said drive motor and said switch to said transfer means to establish electrical interconnections therebetween.

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6. A remote control system as claimed in claim 1 and further comprising a cable assembly connecting said transfer means to said electrical connector for establishing electrical interconnection therebetween.

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7. A remote control system as claimed in claim 1 and further comprising an inclinometer mounted on the circuit breaker for detecting angular deviations in the attitude of the circuit breaker and producing at least one alarm signal when an angular deviation at least equal to a predetermined amount is detected.

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8. A remote control system as claimed in claim 1 and further comprising an inclinometer mounted on the circuit breaker for detecting angular deviations in the attitude of the circuit breaker in fore-and-aft and lateral directions and producing at least one alarm signal when an angular deviation at least equal to a predetermined amount is detected.

9. A remote control system as claimed in claim 1 and further comprising an inclinometer mounted on the circuit breaker for detecting angular deviations in the attitude of the circuit breaker in fore-and-aft and lateral directions and interrupting operation of the circuit breaker racking mechanism upon detecting an angular deviation at least equal to a predetermined amount and providing an alarm signal indicative thereof at said remote control device.

10. A remote control system as claimed in claim 9 wherein said inclinometer is digital.

11. A system for monitoring the attitude of a circuit breaker which is racked into and out of electric switchgear contained in a cell cabinet by a racking mechanism, said system comprising:

a) a portable drive motor mounted in the cell cabinet;

5 b) coupling means for operatively connecting and disconnecting the circuit breaker racking mechanism and said drive motor; and

10 c) an inclinometer mounted on the circuit breaker for monitoring the attitude of the circuit breaker and generating at least one signal upon detecting an angular deviation in the attitude of the circuit breaker at least equal to a predetermined amount.

12. A system as claimed in claim 10 wherein said inclinometer is
15 digital.

13. A system as claimed in claim 11 wherein said inclinometer generates a local display of the axis tilt angle when detecting a normally level attitude of said circuit breaker and generating an
20 alarm signal upon detection of an angular deviation in the attitude of the circuit breaker at least equal to the predetermined amount.

14. A system as claimed in claim 11 wherein said inclinometer generates a signal that interrupts operation of said elevator drive motor upon detection of an angular deviation in the attitude of the circuit breaker at least equal to the predetermined amount.

15. A system as claimed in claim 11 wherein said inclinometer generates a signal that is directed to said coupling means for maintaining the interconnection of the circuit-breaker racking mechanism and said drive motor upon detection of a normally level attitude of the circuit breaker.

16. A system as claimed in claim 15 wherein said inclinometer generates an alarm signal and interrupts operation of the circuit-breaker racking mechanism upon detection of an angular deviation in the attitude of the circuit breaker at least equal to the predetermined amount.

17. A remote control system for racking a circuit breaker into and out of electric switchgear contained in a cell cabinet, wherein the circuit breaker is vertically movable by a racking mechanism between racked-in and racked-out positions with the circuit breaker having a plug which is electrically connected to a receptacle provided on the switchgear when the circuit breaker is in the racked-in position to provide power for operation of circuit breaker functions, said remote control system comprising:

a) a portable drive motor mounted in the cell cabinet;

b) coupling means for operatively connecting and disconnecting the racking mechanism and said drive motor;

c) an electrical connector mounted to extend through the cell cabinet;

d) a remote control device connected by an elongated cable to said electrical connector; and

e) transfer means electrically connected to transfer operational control of said drive motor, said coupling means and the circuit-breaker functions through said electrical connector to said remote control device.

18. A remote control device as claimed in claim 17 and further comprising status-indicating means on said remote control device, said status-indicating means being electrically connected through said transfer means to receive status-indicating signals from the circuit breaker and from said coupling means.

19. A remote control device as claimed in claim 17 and further comprising an inclinometer mounted on the circuit breaker for detecting angular deviations in the attitude of the circuit breaker and producing at least one alarm signal when an angular deviation at least equal to a predetermined amount is detected.

20. A remote control device as claimed in claim 19 wherein said inclinometer is digital.